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A NEW DAWN

Boosting Renewable Energy Towards Sustainability and Economic Growth in Lusophone Africa

Out of 188 countries, the 2015 Human Development Report (HDR) and Human Development Index (HDI) ranks the Community of Portuguese Speaking Countries (CPLP) in Africa at the bottom of the list. Angola ranks at 149 (HDI value 0.532 / electrification rate 6), Cape Verde ranks at 122 (HDI value 0.646 / electrification rate 46.8), Equatorial Guinea ranks at 138 (HDI value 0.587 / electrification rate 43), Mozambique ranks at 180 (HDI value 0.416 / electrification rate 5.4) and São Tomé and Príncipe ranks at 143 (HDI value 0.555 / electrification rate 47).

Poor rural electrification rates and lack of access to modern, stable and sustainable energy have been identified as some of the key factors contributing to the low human development standards in the CPLP countries in Africa.

In recent years, several international initiatives towards promoting energy and environmental sustainability in Africa have been put in place. Among others, this is the case of (1) the United Nations (UN) Sustainable Energy for All (SE4All) initiative – which aims at achieving three main objectives: (i) ensure universal access to modern energy services; (ii) double the global rate of improvement in energy efficiency; and (iii) double the share of renewable energy in the global energy mix; (2) the Africa – EU Renewable Energy Cooperation Program (RECP) – a multi-donor program that supports the development of markets for renewable energy in Africa, launched by more than 35 African and European Ministers and Commissioners under the Africa-EU Energy Partnership (AEEP) within the scope of the EU Energy Initiative Partnership Dialogue Facility – a multi-donor facility that contributes to the achievement of Sustainable Development Goals; and (3) the Alliance for Rural Electrification (ARE) – a SE4All partner, which represents the decentralized clean energy sector and promotes off-grid solutions in developing and emerging countries.

In line with this international trend, the Lusophone Association for Renewable Energy (in Portuguese *Associação Lusófona de Energias Renováveis* (ALER)) has been recently created, its key mission being the promotion of renewable energy in Portuguese-speaking countries. ALER aims at being a key player in CPLP countries by facilitating business opportunities, supporting the private sector, attracting investment and financing, liaising with national and international authorities, and promoting a favorable regulatory framework.

Aware of the potential opportunities and driven by the compelling international trend, lusophone African countries are keen to develop their renewable energy industries and promote rural electrification, notably by boosting on and off grid mini and micro systems. For said purpose, national policies and programs aimed at developing and implementing renewable energy and off-grid solutions are being implemented throughout lusophone African countries.

Overall, said policies aim at creating a more favorable business environment in the energy sector in order to attract both domestic and foreign investors, whether within or outside the scope of the multi-donor financing instruments available.

Angola and Mozambique Lead

This trend is headed by Angola and Mozambique. Among other actions, both countries have recently finalized and made public the Atlas on Renewable Energies (in Portuguese *Atlas de Energias Renováveis*) detailing and identifying the potential for power generation from renewable sources available in each country.

Implementing rural electrification projects – on grid and off grid – and shifting from fossil fuels to renewable energy sources have been identified as critical steps towards promoting energy and environmental sustainability, supporting sustainable economic growth and poverty eradication, as well as enhancing gender equality in these countries.

Both Angola and Mozambique made relevant efforts in recent years in developing and enacting technical and legislative instruments aimed at (i) promoting a sustainable energy future and (ii) enhancing access to modern energy to broader population groups throughout their vast and poorly developed territories.

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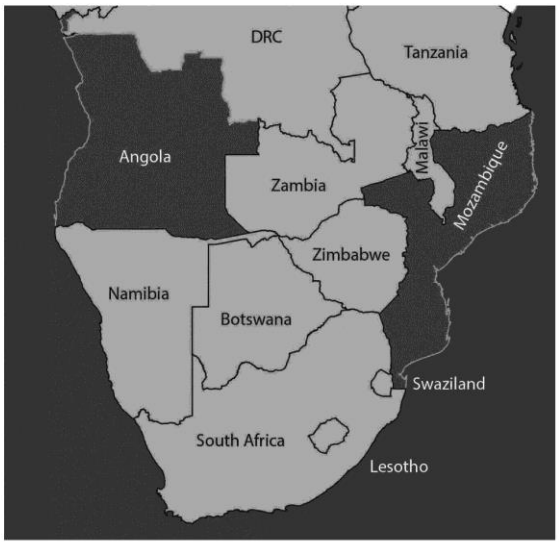
Angola

Angola still has a very low rate of electricity access. Only 32% of the population (roughly 1.8 million Angolans) have access to the public grid. This percentage is considerably lower in rural areas (2%) than in urban areas (52%). A survey of the energy sector conducted by the Angolan government in 2014 revealed that thermal energy for domestic cooking comes from LPG in almost 41% of Angolan households, followed by 36% which use wood, and 19% charcoal. The use of wood



for said purpose is 82% in rural areas. To reverse the tendency of using biomass as an energy source and replacing it by more modern and sustainable sources was pointed out as one of the major goals within the national energy strategy. SE4All's forecasts for Angola indicate that, by 2030, not only 100% of the national population shall have access to safe and sustainable fuel for domestic cooking use, but also that 42% of all energy produced in the country shall come from renewable sources.

For such purpose, the government estimated an annual investment (until 2030) of more than five times the total investment of 2012 for electrification projects, almost 40 times such for investment for distribution of fuel to substitute biomass, and an even larger amount to renewable energy projects.

According to the "Action Plan for Energy and Water Sector for the 2013-2017 Period" almost $20 billion should be invested in the electricity sector during such period, being $12.4 billion directed to the construction of large dams and enhancement of thermal power production, and $5.9 billion allocated to transport and distribution grids.

An improvement of the capacity of Angola's major hydroelectric power plants, along with new projects like the HPP Laúca are currently in place. Many others for production, transport and distribution of electricity are planned. Various gas and diesel thermoelectric power plants have been installed, such as Malembo, Kilevaa and Lobito. Rural electrification, as well as small hydro projects, such as Chiumbe-Dala, are also considered as key elements in the Action Plan. The program "Aldeia Solar" (Solar Village) is an initiative being implemented in order to provide electricity by means of small solar systems in remote areas.

Additionally, the government recently approved the report "Angola Energy 2025" as well as the "National Atlas and Strategy for Renewable Energy." These documents foresee an increase of the use of renewable energy sources up to 800 MW, which shall come from different sources: 100 MW from solar energy; 100 MW from small hydro; 100 MW from wind; and 500 MW from forest, agricultural, and urban waste biomass.

In order to achieve the above target, the government sets the following as being the main strategic goals: Goal 1 – Improve access to energy services in rural areas based on renewables; Goal 2 – Develop the use of new grid-connected renewable technologies; and Goal 3 – Promote and accelerate public and private investment.

Goal 3 includes, among other measures, the creation of specific legislation for renewables, a system of Feed-in-Tariffs (FiT) for projects up to 10 MW, the launch of credit lines to stimulate the private sector initiative in rural areas, and the development of communication campaigns and training offers.

Although, until today, no new projects were formally approved in order to meet such numbers, there have been informal and preliminary discussions on this matter and the first renewable projects are expected to be tendered soon.

Mozambique

Similar to other developing countries, Mozambique has a very low electrification rate and the main energy source is biomass. The intensive use of wood is causing severe environmental and biodiversity damages. The government aims at reversing this situation by creating a favorable environment to investors in the energy sector and promoting the use of modern and sustainable sources and off grid (mini and micro systems) solutions.

In the past two decades, Mozambique has been struggling to implement a modern legal framework governing key sectors such as energy. Following constitutional amendments in the early 1990s, the key role of private investment is now expressly acknowledged and stressed.

On this topic, one should note that the Mozambican Electricity Law, which dates back to 1997, expressly allows the participation of the private sector in power production, transportation, distribution and trade.

Alongside with the creation of local on and off grid power production and distribution infrastructure, Mozambique is also making relevant efforts in moving forward with the implementation of the so-called Backbone Transmission System Project which consists of a double transmission line between Tete Province and Maputo and the Southern African Power Pool interconnected power grid…

Said statute has been recently amended and supplemented by the Law on Public-Private Partnerships, Large Scale Projects and Business Concessions which aims at governing the relationship between private stakeholders and the State.

Following the approval of the Electricity Law, the Energy Policy was enacted in 1998 which already addressed the need to promote and implement the use of new and renewable energy sources. In 2009, Mozambique approved the Energy Strategy and the Policy for the Development of New and Renewable Energies. Further, the Strategy for Development of New and Renewable Energies 2011-2025 (in Portuguese *Estratégia de Desenvolvimento de EnergiasNovas e Renováveis*or EDENR) has also been published in 2011. Said latter instrument comprises the National Program of New and Renewable Energies (in Portuguese *Programa Nacional de Energias Renováveis*, or PNENR) which provides for different sources of financing depending on the features of the project and on the market approach to be implemented. Governmental and/or cooperation partners' financing, bank financing, tax incentives and other benefits, public grants, and public investment funding are contemplated as financing structures available thereunder.

The EDENR also established as a priority, the assessment of new and renewable energies throughout the national territory, notably by means of the mapping of target sites for hydro, wind, solar, biomass, geothermal and wave potential, and technical and economical pre-feasibility assessment of hundreds of potential projects. Said mapping effort has been carried out by the Mozambican Energy Fund (in Portuguese *Fundo de Energia*, or FUNAE) between 2011 and 2013. In 2014, the Mozambican government published the Renewable Energy Atlas (Atlas) which provides a comprehensive analysis of the renewable energy potential in-country. According to the Atlas, Mozambique has an overall renewable potential of 23,026 GW, being 23,000 GW solar, 19 GW hydro, 5 GW wind, 2 GW biomass and 0.1 GW geothermal. The government has set as a priority an increased production of renewable energy up to 7,537 MW, being 5,645 MW hydro, 1,146 MW wind, 599 MW solar, 128 MW biomass and 20 MW geothermal.

Another critical matter identified in the EDENR is the need to amend the regulations governing the energy sector to face the new challenges raised by off-grid solutions and power production from renewable sources.

Thus far, a critical step towards the promoting of renewable energy production has been made with the approval of the Regulations on Renewable Energy FiT, which sets forth the Feed-in-Tariff applicable to power generated by independent producers with capacity lower than, or equivalent to, 10 MW, located within a 10-km range in relation to the point of connection to the national grid. Different FiTs apply depending on the relevant renewable source (biomass, wind, hydro and solar) and depending on the installed capacity of the relevant power production infrastructure. The agreed FiT is valid for a three-year period following which renegotiation with the government is required. Further, the Power Grid Code has also been approved. At present, amendments to the regulations governing the granting of power production, distribution concessions are also expected whereas said statute fails to cover the licensing of off-grid solutions, which are a key part of the strategy to ensure access to energy in areas currently not covered by the national grid.

Alongside with the creation of local on and off grid power production and distribution infrastructure, Mozambique is also making relevant efforts in moving forward with the implementation of the so-called Backbone Transmission System Project which consists of a double transmission line between Tete Province and Maputo and the Southern African Power Pool interconnected power grid, which will also transport the power generated in new hydro power plants such as Mphanda Nkuma (1,500 MW) and Cahora Bassa (1,245 MW).

As flows from the above, both Angola and Mozambique are fully aligned with the global trend to shift the energy pattern by creating conditions to enhance the contribution of renewable sources to the energy mix alongside with increasing rural electrification rates by implementing on and off grid solutions allowing better and wider access to modern, stable and sustainable energy. Despite the challenges ahead, turning back does not seem to be an option. AEA

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